

PCLIO-0808-BT

Bluetooth Controlled IO Board

User's Guide



ANAHEIM AUTOMATION, INC.

910 East Orangefair Lane, Anaheim, CA 92801
e-mail: info@anaheimautomation.com

(714) 992-6990 fax: (714) 992-0471
website: www.anaheimautomation.com

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Section 1: Introduction

The PCLIO-0808-BT is a remote programmable I/O that allows the user to store routines and have the PCLIO-0808-BT autostart the routines on power up. It provides flexible, independent control of 8 relay outputs, which can be triggered on or off based on input status. The PCLIO-0808-BT also gives the user the option of setting inputs to Active Low or high. The easy-to-use Android software SignIO, can be used to directly control/read an I/O status and store a program onto the PCLIO-0808-BT.

With the PCLIO-0808-BT the user no longer needs to remove unit from its resting place in the application; simply scan and connect to make changes. With the universal adoption of Android smart phones, Anaheim Automation has made it simple for hobbyists, OEMs, and students to integrate wireless IO control. The PCLIO-0808-BT has free, fully-functioning software SignIO that is available for download via the Google Play store for Android devices. With this software, the user has full access to the PCLIO's command set and peripherals.

Description

The PCLIO-0808-BT also has a high-level programming command set that includes: branching, looping, conditional statements, time delays, text strings, and I/O, which the user can use in the programming mode to fully control all machine functionality. The I/O may be used for monitoring and controlling machine operation and/or interaxis coordination.

The PCLIO-0808-BT has a built-in programmable reset circuit. Reset is automatic on power-up, or by pressing the external reset button. The software allows the user to write and change programs that are to be stored in the PCLIO-0808-BT for autostart use, as well as upload the program that is stored in the PCLIO-0808-BT itself for editing and viewing. The software also allows the user to store the programs onto their phone or tablet, and easily retrieve them when needed.

Application Profile

The PCLIO-0808-BT is great for hobbyists who are trying to network their home. The PCLIOBT's relay outputs are perfect for controlling home appliances, as it eliminates the need to flip a switch. Instead, the user can turn it on with their phone or tablet. For example, a humidity sensor can be hooked up to the PCLIOBT so a sprinkler system can be controlled via the user's phone. Anaheim Automation has made everything plug and play, greatly simplifying home automation.

Methods of Communication

There are two methods for sending commands to the PCLIO-0808-BT; one method is to directly talk to the PCLIO-0808-BT by using Direct Talk Mode. This can be done with any bluetooth master, where the bluetooth master gives the PCLIO-0808-BT serial commands to off-load its processor. For example: a bluetooth master can use the direct talk commands to toggle outputs, verify inputs, change the active state of inputs and change or verify axis.

The second way to give commands to the PCLIO-0808-BT is to use the software program SignIO, which works with any Android device 2.2 or above to either manually control, or upload/download programs to the PCLIO-0808-BT. SignIO is integrated with branching, looping, conditional statements, time delays and text strings to handle any and all of the user's application requirements. With operating ranges of up to 300 feet, one could use SignIO to monitor the status of their system with their phone from afar.

Bluetooth Transmission

Bluetooth is a proprietary open wireless communication standard utilized to exchange data from fixed and mobile devices, creating personal area networks. Bluetooth communication is secure in that it employs several layers of data encryption and user authentication measures. The PCLIO-0808-BT utilizes Bluetooth version 2.1 and is backwards compatible with Bluetooth version 2.0, 1.2 and 1.1. Currently the PCLIO-0808-BT comes in Class 1 and Class 2 models with operating ranges of 60 feet and 300 feet, respectively. The PCLIO-0808-BT at this time does not support multipoint master mode but can act as master or slave.

Axis Selection

Each PCLIO-0808-BT is addressed using a programmable register allowing the bluetooth master to address up to 100 PCLIO-0808-BT units. The Default axis is "0." To change the axis, use the SignIO software or the "~" command. To verify or check the axis, use the SignIO software or the "%" command. The axis designation is nonvolatile and will remain the same until changed by the user.

Status LED

When powered and operated properly, the status LED will be green. When an error occurs, the LED will change to red, and an error code will be generated in the error code register. To read and clear the error with the software, click on the "Verify Parameters" button located in the "Real Time IO Window" of the SignIO software. To read and clear the error while in "Direct Mode," use the error code "!" command. Once the error has been read and cleared, the LED will return to green and the error code register will be cleared to 0. Refer to the table on page 24 for a complete list of the error codes.

Electrical Specifications

Power Requirements With No Connections:

9VDC to 12VDC @ 200mA

Operating Temperature:

0 to 60 degrees C

Inputs (TTL-CMOS):

Active High

Logic "0": 0 to 0.8VDC

Logic "1": 3.5 to 5VDC

Active Low

Logic "1": 0 to 0.8VDC

Logic "0": 3.5 to 5VDC

Outputs (8 programmable):

3 Amps Out

Normally Open

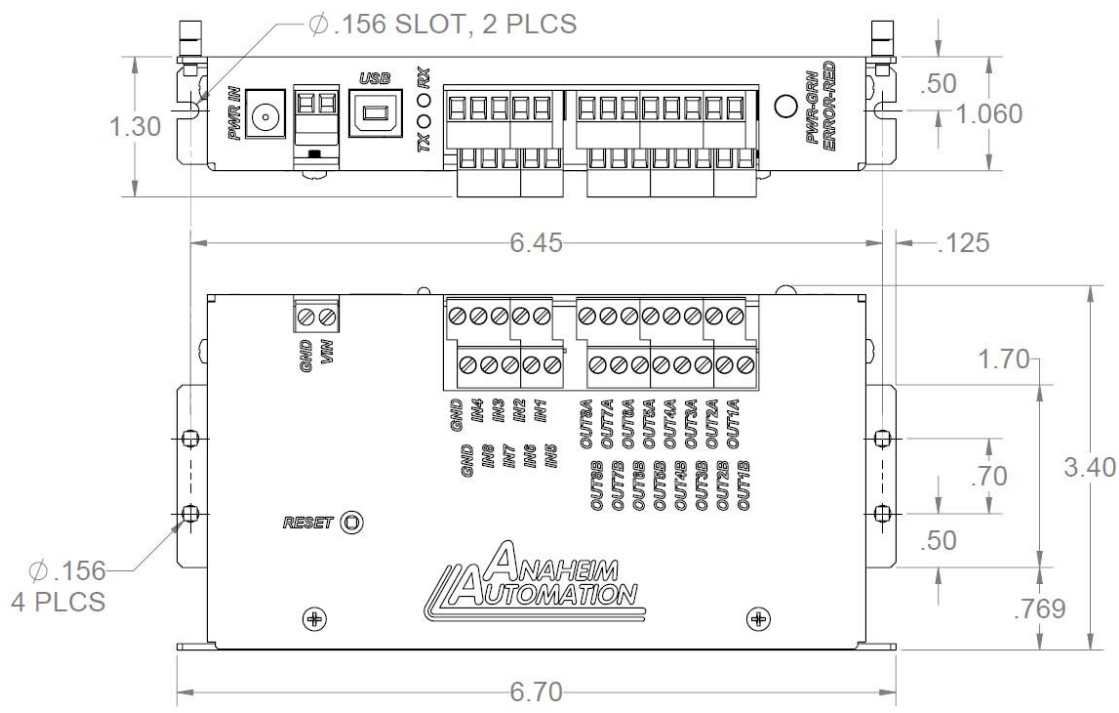
SPST Relay

Ordering Information

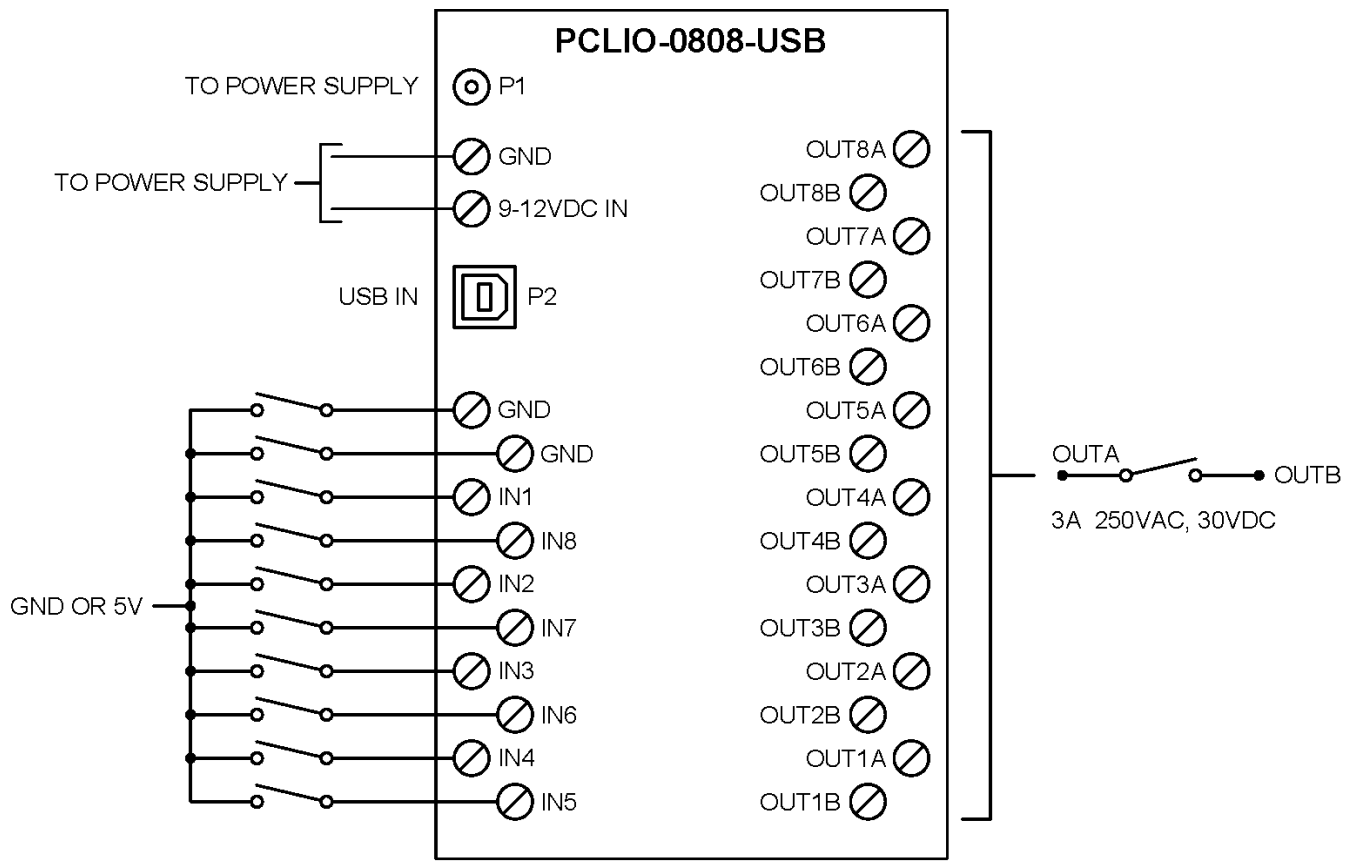
The table below lists the products available at Anaheim Automation that are covered by this manual. Consult Anaheim Automation, Inc. or its representatives for information on the latest product releases.

Part Number	Description
PCLIO-0808-BT	Featured Bluetooth IO Board
AA3264	Class 2 Transformer, Input: 120 VAC 4.5W, Output: 9VDC 500mA

Dimensions



Wiring Diagrams



Terminal Descriptions

Position	Description - Power
1	8-24VDC Power Input
2	Ground Power Return

Position	Description - Inputs
1	Input 1/Analog 1
2	Input 2/Analog 2
3	Input 3/Analog 3
4	Input 4/Analog 4
5	Ground
6	Input 5/Interrupt 1
7	Input 6/Interrupt 2
8	Input 7/Interrupt 3
9	Input 8
10	Ground

Position	Description - Outputs
1	Output 1A
2	Output 2A
3	Output 3A
4	Output 4A
5	Output 5A
6	Output 6A
7	Output 7A
8	Output 8A
9	Output 1B
10	Output 2B
11	Output 3B
12	Output 4B
13	Output 5B
14	Output 6B
15	Output 7B
16	Output 8B

Connector Descriptions

Position	Description - Power
P1	9-12VDC Power Input
P2	This connector is for the USB communication and is labeled USB.

Section 2: Functions

Inputs: All inputs can programmatically be set to Active Low or High as a group. The inputs are TTL and may be used for inter-axis coordination (in stored program mode), for operator intervention, for sensing a machine condition such as out of stock, to initiate a machine cycle, or wait for temperature to be reached, etc. When Active High, a grounded input will read a “0” and a high input will read as a “1” - vice versa when Active Low. There are 4 analog inputs that can return a 10-bit value which can be used to monitor oven temperatures, fluid pressure and fluid flow rate. Along with these 4 Analog inputs the PLCIO-08080-USB is equipped with three interrupt inputs that can trigger various routines stored in memory.

Pull Up/Down Inputs: This instruction sets the active state of all the inputs. For instance, if the inputs are set to Active High, a 5 volt signal will illicit an On status for that input. If a 0 volt signal is applied, the the input will display an Off status. If the inputs are set to Active Low, a 5 volt signal will display an Off status for that input. If a 0 volt signal is applied, the input will show an On status.

Outputs: Eight outputs are provided per axis. Outputs are of relay type which are perfect fits for applications such as coolant valves, air cylinders, or with the correct interfacing, any electronically-controlled device. The outputs can drive all types of common peripheral power loads including lamps, solenoids, LEDs, printer heads, and heaters. For inductive loads, it will be necessary to connect a clamping diode (refer to the electrical specifications section on page 5) from the output to the power source in order to provide adequate fly-back protection.

If/Then Statements: The if/then statements are conditional based on the values preset in the program. The user can either test each individual input or all inputs at once. If the input or input register matches the given value or values, then the program will execute the next line. If the input or input register does not match the given value, the program will skip the next line and execute the following line. If in Active High, an open input is read as a “1” and a grounded input is read as a “0” - vice versa if in Active Low.

Branching or Goto Statements: The Goto instruction will have the program jump to the given label. If no label is in the program, it will error when trying to send.

Return from Subroutine: This function can be placed anywhere in the program as long as a goto statement has been already executed. The program will jump back to the last goto statement encountered and execute the next line in the program.

Inner and Outer Loop: The loop instructions allow the user to loop a program a variable number of times. The program will loop to the designated label location of the program. However, the label must always be at a lower line number than the loop instruction itself. The user can only nest inner loops inside an outer loop. An inner loop cannot be nested inside an inner loop, nor can an outer loop be rested inside an outer loop. Multiple nested inner loops are allowed in one outer loop.

Analog On: This instruction enables the analog features of the PCLIO-0808-USB module on pins 1-4, the user may enable either 1, 2, 3 or 4 analog inputs. If analog inputs are on, the user will automatically receive an On when the inputs are verified, regardless of whether or not anything is connected to that pin. Input 2 cannot be enabled simply as an analog input; input 1 must also be enabled for input 2 to be enabled.

Read Analog Inputs: This instruction allows the user to retrieve the current voltage level at the specified input. Note: If the user wants to read the voltage level of an input, that input must be activated to be of analog type to avoid getting an error. The voltage value returned will be from 0 to 5 volts and the resolution is up to 400mV.

Interrupts: This instruction will run a stored interrupt routine when triggered by the specified interrupt. Only pins 5-7 can operate as interrupt pins and are activated according to the Active High/Low state of the input register. When the input is activated, the program will stop what it is doing and immediately jump to the specified label. If the user wishes to use this interrupt as a regular digital input, the interrupt must be turned off.

Digital Inputs: This instruction turns the currently activated analog inputs on pins 1-4 back into digital inputs. This works very similar to the Analog On command because the user may only have 1, 2, 3 or 4. For instance, if all 4 analog inputs are on but now the application only requires one analog input, turn 3 digital inputs on. This will result in input 1 as an analog input, while 2, 3 and 4 are be converted back to digital.

Equal to: This instruction utilizes either the current analog input value along with a user-defined input voltage to compare to or it utilizes a user register [1-4] and a user-defined value to compare to. If using the equal command with analog inputs, the user will enter a value between 0 and 5.00V (only two numbers after the decimal place and one before) which will be compared to the current value at the specified input. If the current value of the analog input is equal to the user-defined voltage then the next instruction will be executed else the instruction will be skipped. If using the equal command with user registers this command will read the current status of the selected user register and compare it to the user-specified value, and if equal, the next instruction will be executed else the next instruction will be skipped.

Greater Than: This instruction utilizes either the current analog input value along with a user-defined input voltage to compare to, or it utilizes a User Register[1-4] and a user-defined value to compare to. If using the greater than command with analog inputs, the user will enter a value between 0 and 5.00V (only two numbers after the decimal place and one before) which will be compared to the current value at the specified input. If the current value of the analog input is greater than the user-defined voltage, then the next instruction will be executed else the instruction will be skipped. If using the greater than command with user registers this command will read the current status of the selected user register and compare it to the user-specified value, and if greater than, the next instruction will be executed else the next instruction will be skipped.

Less Than: This instruction utilizes either the current analog input value along with a user-defined input voltage to compare to or it utilizes a User Register[1-4] and a user-defined value to compare to. If using the Less Than command with analog inputs, the user will enter a value between 0 and 5.00V (only two numbers after decimal place and one before) that will be compared to the current value at the specified input. If the current value of the analog input is less than the user-defined voltage, then the next instruction will be executed else the instruction will be skipped. If using the Less Than command with user registers, this command will read the current status of the selected user register and compare it to the user-specified value, and if less than, the next instruction will be executed else the next instruction will be skipped.

Load User Registers: This instruction gives the user the ability to load 4 user registers with values ranging from 0 to 65,535.

Increment User Registers: This instruction gives the user the ability to increment any of the 4 user registers by 1.

Decrement User Registers: This instruction gives the user the ability to decrement any of the 4 user registers by 1.

Wait: This instruction gives the user the ability to wait a given amount of milliseconds before executing the next instruction, ranging from 1 to 65,535.

Section 3: SignIO Software

The SignIO software is a helpful utility that supports Anaheim Automation's line of PCLIO-0808-BT Bluetooth IO modules. When connecting the Android device to the PCLIO-0808-BT via a bluetooth virtual Com port, the SignIO software can easily perform the following tasks:

- Exercise and monitor the PCLIO-0808-BT IO Board
- Write and edit stored programs for standalone operation
- Directly communicate with the PCLIO-0808-BT IO Board

Installation Software

- The SignIO software and supplementary sample programs can be download directly from the Google Play Store. The PCLIO-0808-BT manual can be downloaded from www.anaheimautomation.com/literature.php
- SignIO is compatible with all versions of Android 2.2 and higher

Getting Started

- 1) Click on the SignIO icon to run the SignIO application.
- 2) Apply power to the PCLIO-0808-BT controller.
- 3) Set the appropriate axis setting by selecting Setup | Axis from the menu bar.
- 4) Establish communications with the PCLIO-0808-BT by clicking on the Connect icon and selecting the appropriate bluetooth IO.

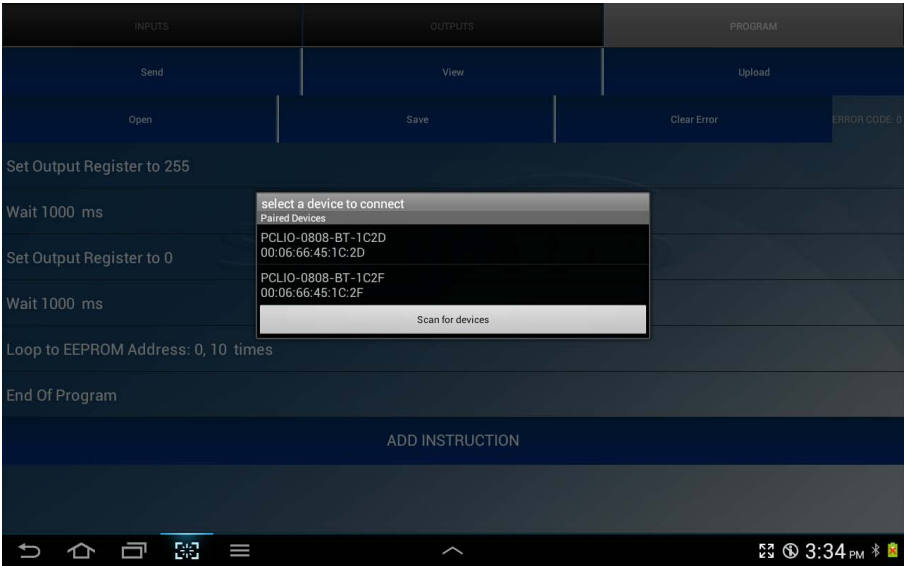
Connect Menu



Note:
This menu is only accessible when you are not connected to a unit. This menu will be populated with different options once connected.

Connect	This will initiate the connect sequence.
Make Discoverable	This will allow other bluetooth devices to see you.
Disconnect	This will disconnect you from the bluetooth device you are currently connected to.

Select Device



After selecting connect, the user will be prompted to select a device or pair a new device.

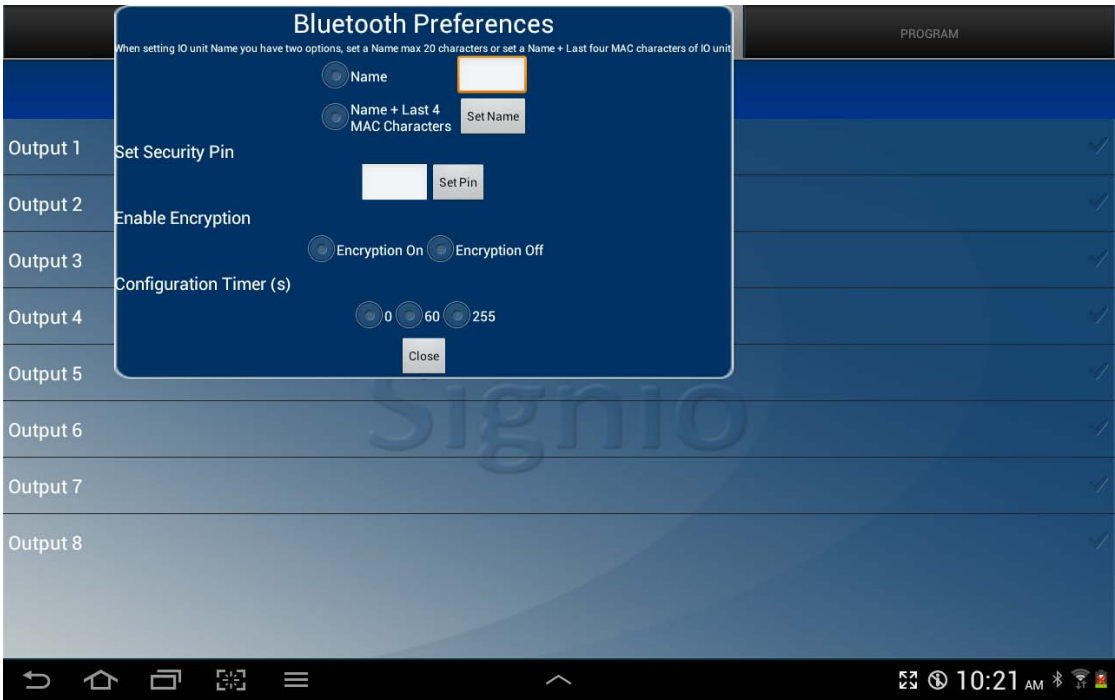
Connected Menu



Note:
This menu is only accessible when you are not connect to a unit and in the Inputs or Outputs Tab. This menu will be populated with different options if disconnected or in the programs tab.

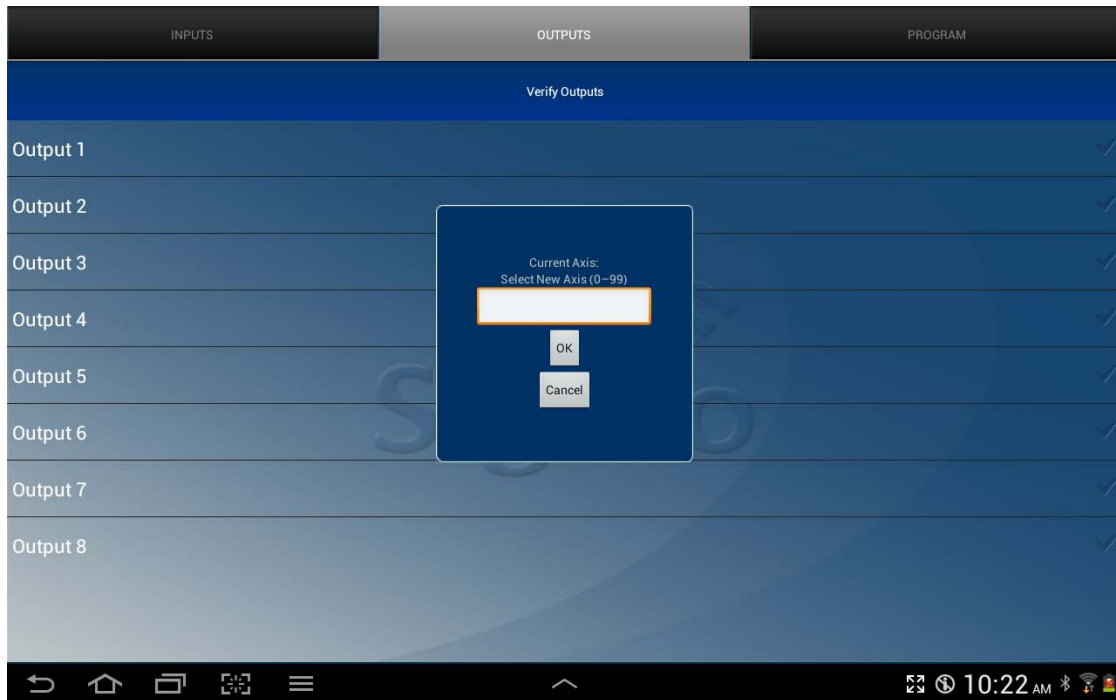
Bluetooth Preferences	This will open the Bluetooth Preferences.
Select Axis	This will open the Select Axis Window.
Define Axis	This will open the Define Axis Window.
Disconnect	This will disconnect you from the current unit you are connected to.

Bluetooth Preferences



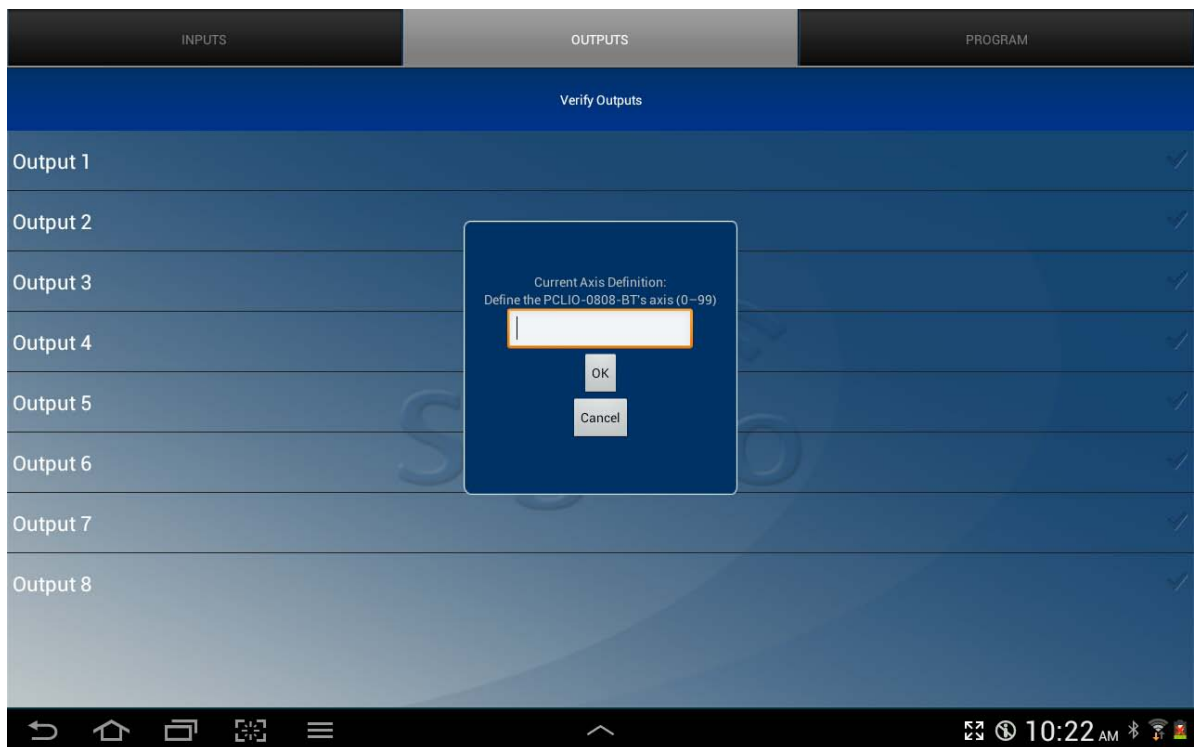
Name	This will set the name of the IO module. You can choose to set the name only, or set the name plus the last 4 characters of the MAC address.
Security Pin	This will set the security pin which will grant you access to connect to the IO unit
Encryption	This will either enable or disable 128 bit encryption for transmission.
Configuration Timer	You will only be able to edit the bluetooth preferences if you are within the configuration timer. The configuration timer is the time you have to enter the bluetooth preferences after the unit is powered on.

Select Axis



Sets the axis select parameter in the SignIO application (0-99)

Define Axis



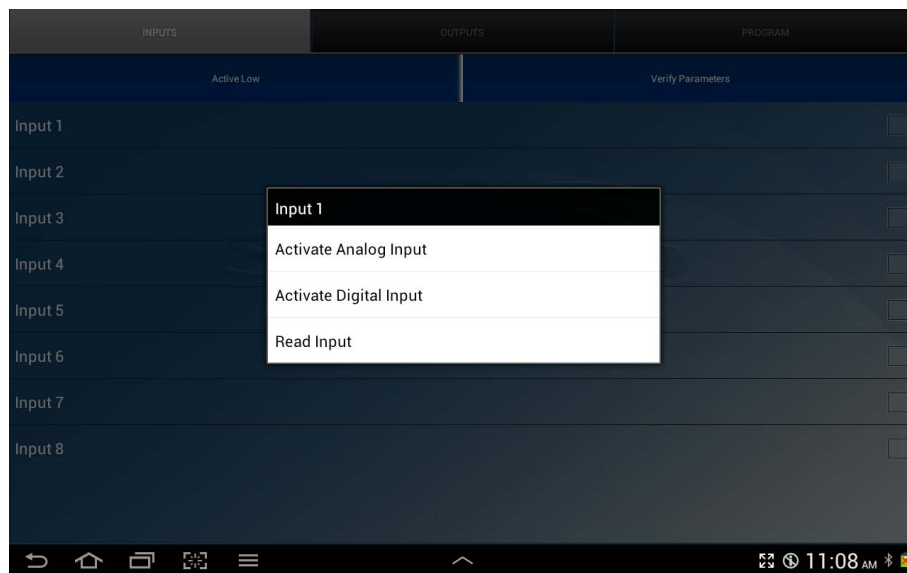
Sets the programmable address in the controller (0-99).

Inputs Tab



Active Low	This is a toggle button that will change the active state of all inputs. When this button reads “Active Low” a grounded signal to an input will correspond to that input being ON. If the toggle button reads “Active High” a 5 VDC signal will trigger the input to be ON.
Verify Parameters	This button will verify the On/Off, Analog/Digital and Active High/Low state of your inputs as well as clear the current error.

Inputs Context Menu



Note:
To access the inputs context menu you must press down on the Input # for an extended amount of time.

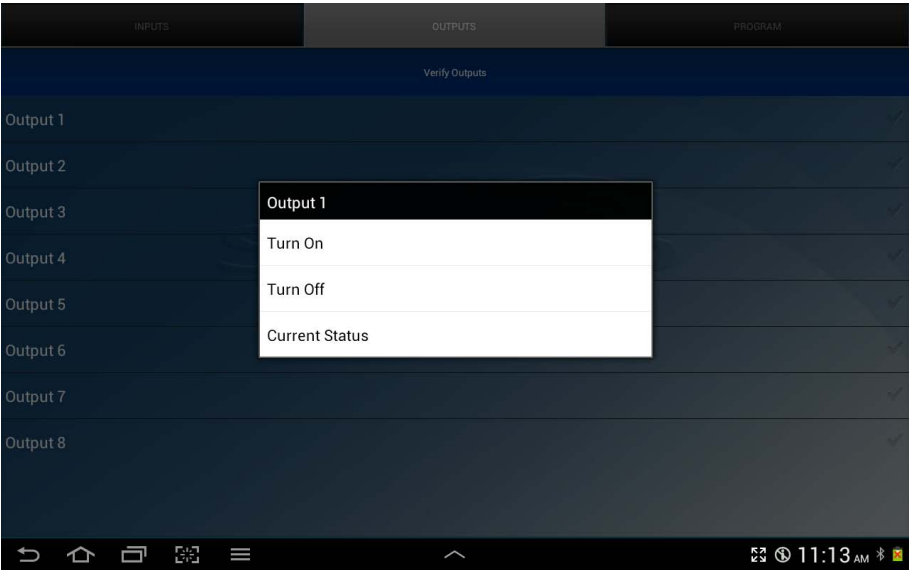
Activate Analog Input	This changes the functionality of the first four inputs from strictly digital (ON/OFF) to analog (0-5V). You can either have input 1, input 1-2, input 1-3 or input 1-4 be analog, you are unable to just have input 2 be analog without 1 being analog.
Activate Digital Input	This changes the functionality of the first four input from analog back to digital.
Read Input	If the input is enabled as analog the current voltage at that input will be displayed. If the input is enabled as digital, it will display whether the input is ON or OFF.

Outputs Tab



Verify Outputs	This will return the state of the Output ON/OFF
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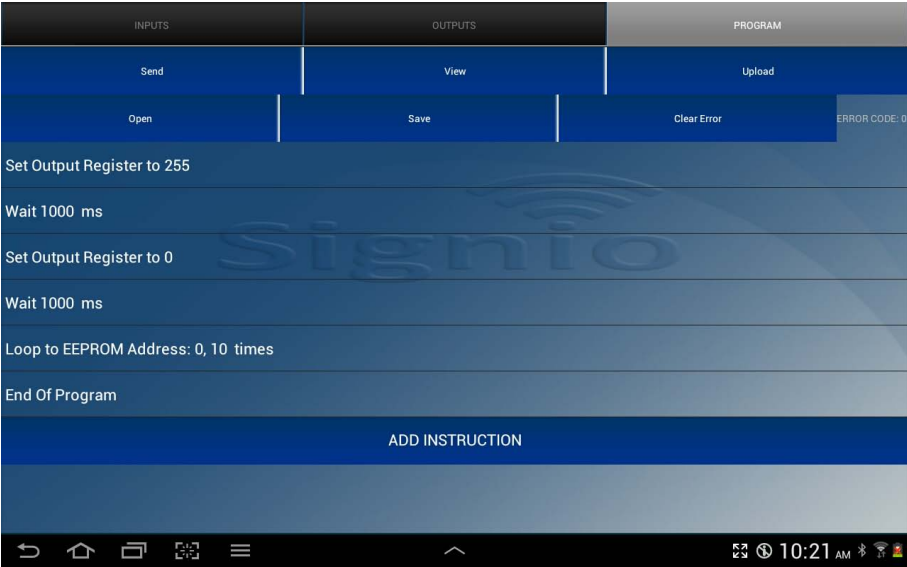
Output Context Menu



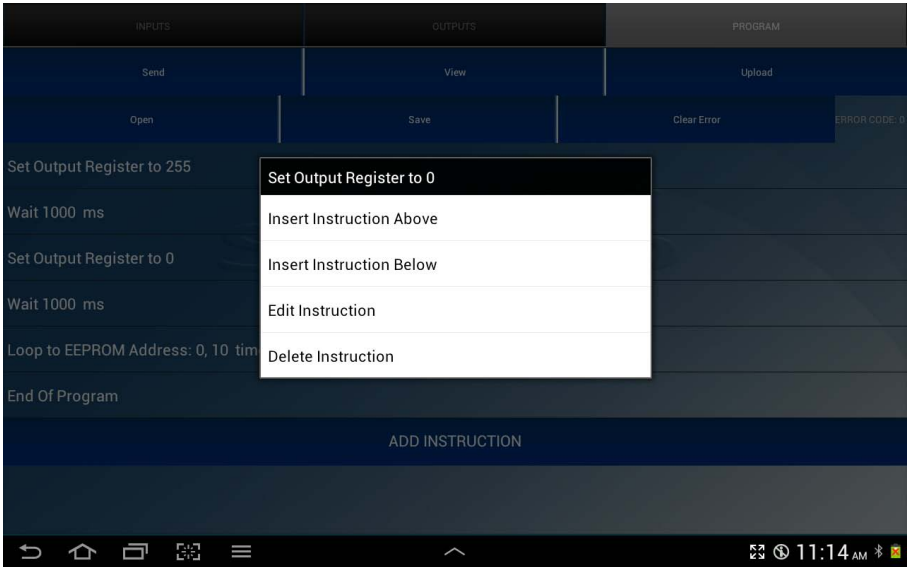
Note:
To access the outputs context menu you must press down on the Input # for an extended amount of time.

Turn On	This context menu selection will turn on the selected output.
Turn Off	This context menu selection will turn off the selected output.
Current Status	This context menu selection will return the status of the selected output.

Program Tab



Send	Send current program to the controller.
View	View program in the controller memory.
Upload	Upload the program in the controller for editing and saving.
Open	Open an existing program from disk.
Save	Save the current program to disk or directory.
Clear Error	This will remove the error from the controller as well as return the error code.
Add Instruction	Add a new line of code to the end of the program.



Note:
To access the program context menu you must press down on the desired Instruction for an extended amount of time.

Insert Instruction Above	This context menu selection will insert an additional instruction above the instructions which activated the context menu.
Insert Instruction Below	This context menu selection will insert an additional instruction below the instructions which activated the context menu.
Edit Instruction	This context menu selection will delete the instruction which activated the context menu and replace it with the new selection.
Delete Instruction	This will delete the instruction which activated the context menu.

Open:



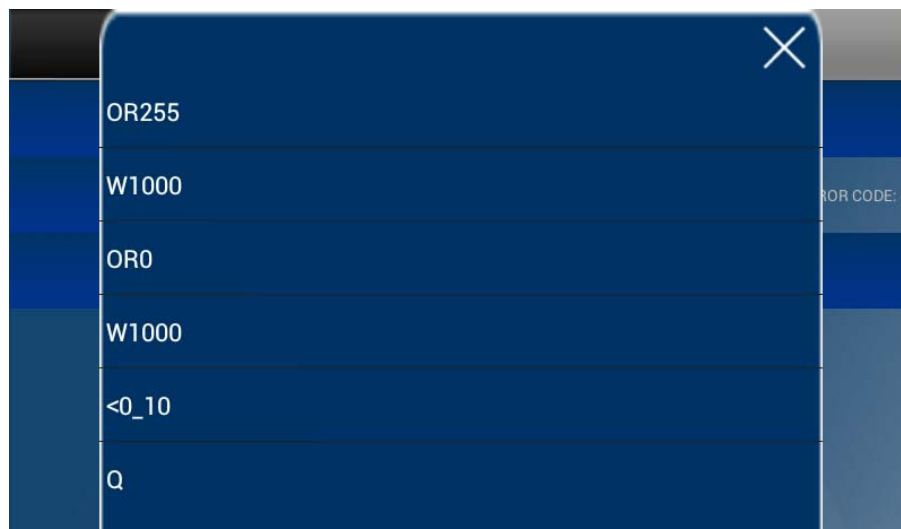
Simply select the file you wish to open or press Close if you wish to cancel.

Save As:



Simply enter the name you wish to give you file in the text box and press Save or Cancel.

View:



This will open up a Popup Window of the program inside of the controller.

Instruction Set

These tab sheets allows the user to program functions to be added. Upon selection, a Popup window will be displayed, allowing the user to enter the parameters for that specific command if required.

Input/Output Tab



If Bit	This conditional command allows the user to execute the next line of code if the specific input triggered matches the given value. If the input does not match, the next line is skipped.
If Reg	This conditional command allows the user to execute the next line of code if the inputs triggered match the given value. If the inputs do not match, the next line is skipped.
Active Low/High	This sets the active state of the inputs. If Active Low is selected, an input is on if tied to ground. If Active High is selected, an input is on if tied to 5V.
Analog On	This changes the functionality of the first four inputs from strictly digital (ON/OFF) to analog (0-5 V). You can either have input 1, input 1-2, input 1-3 or input 1-4 be analog, however it is not possible to have 2 analog without 1 being analog.
Analog Equal	This compares the user-specified voltage level of the input and compares it to actual input. If the measured value is less than the specified value then it will execute the next line, else skip the next line.
Analog Greater	This compares the user-specified voltage level of the input and compares it to actual input. If the measured value is greater than the specified value then it will execute the next line, else skip the next line.
Analog Less	This compares the user-specified voltage level of the input and compares it to actual input. If the measured value is less than the specified value then it will execute the next line, else skip the next line.
Interrupt	If ON is selected for the input then the input has been activated as an Interrupt and will run to the desired label. If OFF is selected then the input will remain digital.
Individual Output	The outputs can be turned (ON=1) or (OFF=0). These outputs can be used to trigger PCL operations, relays, solenoids, etc.
Register Outputs	This sets the outputs as a group by assigning each outputs a value (ON=1) or (OFF=0) and triggers outputs all at once.

Instruction Set cont...

Goto, For Loops Tab



Goto	Command allows the program to jump to the specified label.
Label	Command inserts a label for goto and loop commands.
Return	Command will return to the last goto and execute the next line of code.
Send ASCII	This command will send up to 20 characters out of the unit at a Baud rate of 38,400 bps, 8 Data bits, No Parity, 1 Stop bit and No Flow Control
Inner For Loop	Command allows a sequence of commands to be looped a specific number of times to a label. This label must be before the inner loop command. This command can be used within an outer loop.
Outer For Loop	Command allows a sequence of commands to be looped a specific number of times to a label. This label must be before the outer loop command. This command cannot be used within an inner loop.
User Register Equal	This command compares the current status of the selected user register with the user-defined value. If the current value of the selected user register is equal than the user-defined value, then the next line is executed, else skip the next line. This is accurate up to 800 mV.
User Register Greater	This command compares the current status of the selected user register with the user-defined value. If the current value of the selected user register is greater than the user-defined value, then the next line is executed, else skip the next line.
User Register Less	This command compares the current status of the selected user register with the user-defined value. If the current value of the selected user register is less than the user-defined value, then the next line is executed, else skip the next line.
User Register Increment	This sets the outputs as a group by assigning each outputs a value (ON=1) or (off=0), and triggers outputs all at once.
User Register Decrement	This decrements the selected user register by one
User Register Load	These commands allow the user to load any value from 0 to 65,535 in the corresponding register.
Wait	Command sets a time delay used for settling time needed after an index is finished. The delay occurs before the encoder count is read.
Quit	This command is required as the last command in the program code.

Section 5: Direct Talk Mode

Direct mode is used to directly control motion for real time movements through serial communication. The PCLIO-0808-BT controller has 8 commands which are easy to remember for direct movement of a step motor.

Unit Selection

In order to select a unit, the “@” command followed by the address of the unit must be sent.

NOTE: There should be no spaces between the “@” and address select.

How to select a unit:

@0 (Unit 0 is selected)
@1 (Unit 1 is selected)
@29 (Unit 29 is selected)

How to get a response from a unit:

@0\$ (Carriage Return)

After the “\$” command, the PCLIO-0808-BT will return a SMC60 + the current revision number.

Note: In direct talk mode each command is followed by a carriage return.

The unit communicates in half duplex mode, therefore proper setup of Hyper Terminal is necessary to view characters, if characters are to be echoed back to the screen.

Instructions

All instructions require that no spaces be sent between the command and the parameter followed by a carriage return.

“@0” not “@” 0

Examples:

Correct: @0(carriage return)

Incorrect: @ 0 (carriage return)

Command Summary:

I - Read inputs	H - Inputs Active Low/High
O - Set outputs	D - Digital Inputs
V - Verify	
! - Error codes register	
\$ - Version number	
% - Verify axis number	
~ - Set address of PCLIO-0808-USB	

D - Set Digital Inputs

Format 1: D[input]

Description: This command turns the currently activated analog inputs on pins 1-4 back into digital inputs. For instance if inputs 1, 2, & 3 were currently activated as analog inputs, a D2 command will turn input 3 back into a digital input. If 4 inputs were activated as analog inputs, a D3 command will convert inputs 2, 3, & 4 back into digital inputs.

Range: 1 - 4

H - Set Inputs as Active High or Active Low

Format 1: H1 or H0

Description: This command will set the state of your inputs to either Active Low (H1) or Active High (H0). If the user decides to set the inputs as Active Low then grounding the inputs will show an "on" state, while tying the inputs to 5V will show an "off" state. If inputs are set as Active Low then tying inputs to 5V will give an "on" state and grounding inputs will give an "off" state.

Range: 0 - 1

I - Read inputs

Format 1: IR

Description: This command returns the binary value of the inputs to the Bluetooth master. This command works with the Active Low/high register of the inputs; so they will return a high when they are open if in Active High or if in Active Low and grounded. For example, if inputs are Active Low and grounded the command will return a 255. If all inputs are Active High and grounded, the command will return a 0.

Format 2: I[input]

Description: This command returns the value of the selected input to the bluetooth master. If the Active High/Low register is set to High and the input is high it will return a 1, else if the input is low it will return a 0. If the the Active High/Low register is set to Low and the input is grounded it will return a 1, else if the input is high it will return a 0.

Range: 0 - 8

! - Error codes register

Format: !

Description: This command requests the PCLIO-0808-USB controller to get the current error code and print it to the screen. For a description of the error codes see page 24s.

\$ - Version number register

Format: \$

Description: This command requests the PCLIO-0808-USB controller to return it's internal firmware version number.

O - Set outputs

Format 1: OR[value]

Description: This command sets the output register according to the binary value entered. Output 1 is the LSB and output 8 is the MSB.

Range: 0 - 255

Format 2: O[output]=[0 or 1]

Description: This command sets the selected output either on or off. A "1" will turn the output on (0VDC) and a "0" will turn the output off (open).

Range: 0 - 8

V - Verify

Verify Outputs

Format: 1 VO

Description: This command is used to verify the state of the outputs by displaying a value between 0 and 255.

Verify Analog Inputs

Format: 2 VA

Description: This command is used to verify how many inputs are activated as analog and will return a value from 1-4

Verify Inputs Active Low/High

Format: 3 VH

Description: This command is used to verify whether inputs are Active Low or high. A "1" is displayed if inputs are Active Low and a "0" if inputs are Active High.

Verify User Register Value

Format: 4 VT[1-4]

Description: This command is used to verify the current value of the specified user register.

~ - Set Address Register

Format: ~[value] (No address is needed before this function; @[~[value]] will set the address)

Description: This command sets the address for communication inside the PCLIO-0808-USB controller.

Range: 0 - 99

Section 6: Troubleshooting

Technical Support

Common troubleshooting issues are covered in this section; if you require additional assistance beyond the scope of this manual, please contact the factory direct. If possible, have this manual in hand. It is often helpful to have the controller connected to a computer with the software installed.

Anaheim Automation, Inc.
Technical Support:

910 East Orangefair Lane
Anaheim, CA, 92801-1195
Phone: (714) 992-6990
Fax: (714) 992-0471
www.anaheimautomation.com

Problem:

Cannot establish communications with the PCLIO-0808-USB.

Possible Solutions:

- 1) Make sure the PCLIO-0808-USB controller has power. Is the Green LED on?
- 2) Check the Bluetooth connection.
- 3) Was the software installed successfully?
- 4) Go to **Setup | Axis** and verify that the address settings are the same.
- 5) Click on the **Setup | Connect** icon to communicate with the PCLIO-0808-USB controller.
- 6) If problems still exist, contact Anaheim Automation Tech Support.

Problem:

There is no power to the PCLIO-0808-USB controller.

Possible Solutions:

- 1) Is the PCLIO-0808-USB controller connected to the appropriate power supply?
- 2) Check for any blown fuses in line with the PCLIO-0808-USB controller.
- 3) If problems still exist, contact Anaheim Automation, Inc. Tech Support.

Problem:

My program won't "Autostart".

Possible Solutions:

- 1) Verify that the Autostart Function has been enabled.
- 2) Go to **Setup | Autostart Program** and Click on **Enable**.
- 3) If problems still exist, contact Anaheim Automation Tech Support.

Problem:

The PCLIO-0808-USB controller has a fault condition.

Possible Solutions:

- 1) Verify your program for improper syntax that may cause an error code.
- 2) Physically press the reset button on the PCLIO-0808-USB to clear an error.
- 3) To clear an error, click on the verify parameters button using the SignIO software, or use the direct mode clear error command.
- 4) The direct mode command “!” can clear an error by simply prompting the error code register to return the value back to the bluetooth master.

Note: Read the error returned to the screen to better understand what can be causing the fault condition. The error is returned in binary-coded decimal format. If two errors were received, their binary values would be added together.

Error Codes

Error Code	Type	Description
1	Receive Overflow Error	The serial communications had a receiving error. This is an internal error caused by the computer.
8	Command Error	A bad command was sent to the controller. Please check to see that the command being sent is valid.
32	Range Overflow Error	The wait command has an overflow error. This is caused by the “W” command trying to wait an amount of time that is out of range.
64	Range Error	There was an invalid number of commands and characters sent to the controller. Check to see if the parameters are invalid for the command that was sent.
128	Transmitt Error	Too many parameters sent back to the PC. This is an internal error caused by the ee-prom.
256	Mode Error	Controller is in a wrong mode. Some commands are good only in programming mode, while others are good only in direct mode. Check the direct mode section to see which commands are good in direct mode.
512	Zero Parameters Error	There were no parameters sent to the controller. An instruction was sent to the controller without the necessary parameters after the command.
2048	Memory Range Error	The specified address is out of range. This is caused by overflowing the program memory by having a program that is too large.
4096	Memory Command Error	The command pulled from memory is invalid. The command that was stored into the eeprom was non executable by the program. This is an internal error.

Appendix 1: ASCII Table for Direct Mode

ASCII Symbol	Hex Value	ASCII Symbol	Hex Value	ASCII Symbol	Hex Value
0	30	J	4A	#	23
1	31	K	4B	\$	24
2	32	L	4C	%	25
3	33	M	4D	"	27
4	34	N	4E	(28
5	35	O	4F	+	2B
6	36	P	50	,	2C
7	37	Q	51	-	2D
8	38	R	52	.	2E
9	39	S	53	:	3A
A	41	T	54	;	3B
B	42	U	55	@	40
C	43	V	56	[5B
D	44	W	57]	5D
E	45	X	58	^	5E
F	46	Y	59	{	7B
G	47	Z	5A	}	7D
H	48	Carriage Return	0D	~	7E
I	49	!	21		

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